

## II. AMENDMENTS

### IN THE CLAIMS

1           1.       (Currently amended) A method of ~~facilitating maintenance of an index during~~  
2 ~~a~~organizing data in a database wherein said database is subject to reorganization, ~~of data in a~~  
3 ~~database, and~~ wherein said database comprises one or more records and each said record  
4 includes a root segment and one or more non-root segments, the method comprising:

5           storing each root segment in a separate storage location; and

6           retaining each root segment in its storage location during a reorganization of non-root  
7           segment data in said database.

1           2.       (Original) The method of claim 1, wherein all root segments stored within a  
2 block of storage locations are stored in contiguous storage locations.

1           3.       (Original) The method of claim 1, wherein each said storage location which  
2 stores a root segment is fixed.

1           4.       (Original) The method of claim 2, wherein each said storage location which  
2 stores a root segment is fixed.

1           5.       (Original) The method of claim 1, wherein said database is an IMS full  
2 function database.

1           6.       (Original) The method of claim 3, wherein each said root segment is stored in  
2 a fixed storage location at the time it is added to the database.

1           7.       (Currently amended) A method of ~~facilitating maintenance of an index during~~  
2 ~~a~~organizing data in a database wherein said database is subject to reorganization, ~~of data in a~~  
3 ~~database, and~~ wherein said database comprises one or more records and each said record  
4 includes a root segment and one or more non-root segments, the method comprising:

5           storing each root segment in a separate storage location, wherein each storage location  
6           is associated with a particular block of storage locations;

7           retaining each root segment in its storage location during a reorganization of non-root  
8           segment data in said database; and

9 storing each non-root segment, associated with a first root segment, in a block of  
10 storage locations in which said first root segment is also stored.

1 8. (Original) The method of claim 7, wherein all root segments stored within a  
2 block of storage locations are stored in contiguous storage locations.

1 9. (Original) The method of claim 7, wherein each said storage location which  
2 stores a root segment is fixed.

1 10. (Original) The method of claim 8, wherein each said storage location which  
2 stores a root segment is fixed.

1 11. (Original) The method of claim 7, wherein said database is an IMS full  
2 function database.

1 12. (Original) The method of claim 9, wherein each said root segment is stored in  
2 a fixed storage location at the time it is added to the database.

1 13. (Currently amended) A method of ~~facilitating maintenance of an index during~~  
2 ~~a organizing data in a database wherein said database is subject to reorganization, of data in a~~  
3 ~~database, and~~ wherein said database comprises one or more records, each said record includes  
4 a root segment and one or more non-root segments, and each root segment comprises a prefix  
5 component and a data component, the method comprising:  
6 storing said prefix component of each root segment in a separate storage location; and  
7 retaining said prefix component of each root segment in its storage location during a  
8 reorganization of non-root segment data in said database.

1 14. (Original) The method of claim 13, wherein all root segment prefix  
2 components stored within a block of storage locations are stored in contiguous storage  
3 locations.

1 15. (Original) The method of claim 13, wherein each said storage location which  
2 stores a root segment prefix component is fixed.

1           16.   (Original) The method of claim 14, wherein each said storage location which  
2 stores a root segment prefix component is fixed.

1           17.   (Original) The method of claim 13, wherein said database is an IMS full  
2 function database.

1           18.   (Original) The method of claim 15, wherein each said root segment prefix  
2 component is stored in a fixed storage location at the time it is added to the database.

1           19.   (Currently amended) A method of ~~facilitating maintenance of an index during~~  
2 ~~a organizing data in a database wherein said database is subject to reorganization, of data in a~~  
3 ~~database, and~~ wherein said database comprises one or more records, each said record includes  
4 a root segment and one or more non-root segments, and each root and non-root segment  
5 comprises a prefix component and a data component, the method comprising:

6           storing said prefix component of each root segment in a separate storage location,  
7           wherein each storage location is associated with a particular block of storage  
8           locations;

9           retaining said prefix component of each root segment in its storage location during a  
10           reorganization of non-root segment data in said database; and

11           storing said prefix component of each non-root segment which is associated with a  
12           first root segment, in a block of storage locations in which said prefix  
13           component of said first root segment is also stored.

1           20.   (Original) The method of claim 19, wherein all root segments stored within a  
2 block of storage locations are stored in contiguous storage locations.

1           21.   (Original) The method of claim 19, wherein said database is an IMS full  
2 function database.

1           22.   (Original) A method of facilitating correction of an index after a  
2 reorganization of data in a database, wherein said index comprises index entries, said  
3 database comprises one or more records, each said record comprises one or more segments,  
4 and each index entry comprises an address to a target segment, the method comprising:

5 prior to a reorganization of data in said database, assigning a unique token to each  
6 target segment and each corresponding index entry having an address to a  
7 target segment, wherein said unique token for a given target segment and for a  
8 corresponding index entry is the same;  
9 after a reorganization of data in said database, reading the unique token of a first  
10 index entry;  
11 reading the unique token of each target segment until a match is found between the  
12 unique token of a matching target segment and the unique token of said first  
13 index entry;  
14 determining the address of said matching target segment; and  
15 replacing the address of said first index entry with the address of said matching target  
16 segment.

1 23. (Original) The method of claim 19, wherein said index which is to be  
2 corrected is a secondary index and each said segment is a non-root segment.

1 24. (Original) The method of claim 22, wherein said database is an IMS database.

1 25. (Original) The method of claim 23, wherein said database is an IMS database.

1 26. (Original) A method of facilitating correction of an index after a  
2 reorganization of data in a database, wherein said index comprises index entries, said  
3 database comprises one or more records, each said record comprises a root segment and one  
4 or more non-root segments, and each index entry comprises an address to a target segment  
5 included within said root and non-root segments, the method comprising:

6 prior to a reorganization of data in said database, assigning a unique token to each  
7 target segment and each corresponding index entry having an address to a  
8 target segment, wherein said unique token for a given target segment and for a  
9 corresponding index entry is the same;  
10 after a reorganization of data in said database, reading the unique token of a first  
11 index entry for a first record;  
12 reading the unique token of each non-root segment within said first record until a  
13 match is found between the unique token of a matching target segment and the  
14 unique token of said first index entry;

15 determining the address of said matching target segment; and  
16 replacing the address of said first index entry with the address of said matching target  
17 segment.

1 27. (Original) The method of claim 26, wherein said index which is to be  
2 corrected is a secondary index.

1 28. (Original) The method of claim 26, wherein said database is an IMS database.

1 29. (Original) The method of claim 27, wherein said database is an IMS database.

1 30. (Original) The method of claim 26, wherein each said unique token includes  
2 one or more the following: (i) a born on date of the target segment to which said unique  
3 token is assigned; or (ii) a key field of the target segment to which said unique token is  
4 assigned.

1 31. (Original) A method of facilitating correction of an index after a  
2 reorganization of data in a database, wherein said index comprises index entries, said  
3 database comprises one or more records, each said record comprises a root segment and one  
4 or more non-root segments, and each index entry comprises an address to a target segment  
5 included within said root and non-root segments, wherein said root segment and one or more  
6 non-root segments for a record are stored within a block of storage locations, the method  
7 comprising:

8 prior to a reorganization of data in said database, assigning a unique token to each  
9 target segment and each corresponding index entry having an address to a  
10 target segment, wherein said unique token for a given target segment and for a  
11 corresponding index entry is the same;  
12 after a reorganization of data in said database, reading the unique token of a first  
13 index entry for a first record;  
14 reading the unique token of each non-root segment within said first record until a  
15 match is found between the unique token of a matching target segment and the  
16 unique token of said first index entry;  
17 determining the address of said matching target segment; and

18 replacing the address of said first index entry with the address of said matching target  
19 segment.

1 32. (Original) The method of claim 31, wherein said index which is to be  
2 corrected is a secondary index.

1 33. (Original) The method of claim 31, wherein said database is an IMS database.

1 34. (Original) The method of claim 32, wherein said database is an IMS database.

1 35. (Original) The method of claim 31, wherein each said root segment is stored  
2 in a fixed storage location prior to a reorganization of data in said database, and said root  
3 segment is retained in said fixed storage location during a reorganization.

1 36. (Original) The method of claim 31, wherein each said unique token is  
2 includes one or more the following: (i) a born on date of the target segment to which said  
3 unique token is assigned; or (ii) a key field of the target segment to which said unique token  
4 is assigned.

1 37. (Original) A method of facilitating correction of an index after a  
2 reorganization of data in a database, wherein said index comprises index entries, said  
3 database comprises one or more records, each said record comprises a root segment and one  
4 or more non-root segments, each root and non-root segment comprises a prefix component  
5 and a data component, and each index entry comprises an address to the prefix component of  
6 a target segment included within said root and non-root segments, the method comprising:  
7 prior to a reorganization of data in said database, assigning a unique token to the  
8 prefix component of each target segment and each corresponding index entry  
9 having an address to the prefix component of a target segment, wherein said  
10 unique token for the prefix component of a given target segment and for a  
11 corresponding index entry is the same;  
12 after a reorganization of data in said database, reading the unique token of a first  
13 index entry for a first record;  
14 reading the unique token of the prefix component of each non-root segment within  
15 said first record until a match is found between the unique token of a matching

16 target segment prefix component and the unique token of said first index  
17 entry;  
18 determining the address of said matching target segment prefix component; and  
19 replacing the address of said first index entry with the address of said matching target  
20 segment prefix component.

1 38. (Original) The method of claim 37, wherein said index which is to be  
2 corrected is a secondary index.

1 39. (Original) The method of claim 37, wherein said database is an IMS database.

1 40. (Original) The method of claim 37, wherein each said root segment is stored  
2 in a fixed storage location prior to a reorganization of data in said database, and said root  
3 segment is retained in said fixed storage location during a reorganization.

1 41. (Original) The method of claim 37, wherein each index entry and each non-  
2 root target segment further comprise a root segment identifier which identifies what root  
3 segment said non-root target segment is associated with, and each identified root segment  
4 comprises addresses to all non-root segments, within a record, associated with said identified  
5 root segment.

1 42. (Original) The method of claim 41, wherein each said unique token includes  
2 one or more the following: (i) a born on date of the target segment to which said unique  
3 token is assigned; or (ii) a key field of the target segment to which said unique token is  
4 assigned.

1 43. (Original) The method of claim 42, wherein each said unique token for an  
2 index entry and each non-root target segment further comprises said root segment identifier  
3 which identifies what root segment said non-root target segment is associated with.

1 44. (Original) The method of claim 41, wherein said database is an IMS database.

1 45. (Original) The method of claim 41, wherein said index which is to be  
2 corrected is a secondary index.

1           46.     (Original) The method of claim 37, wherein each said unique token includes  
2 one or more the following: (i) a born on date of the target segment to which said unique  
3 token is assigned; or (ii) a key field of the target segment to which said unique token is  
4 assigned.

1           47.     (Original) The method of claim 22, wherein after a reorganization of data in  
2 said database but before taking steps to correct said address of said first index entry,  
3 determining if said address of said first index entry is valid and then correcting said address  
4 only if it is invalid.

1           48.     (Original) The method of claim 47, wherein determining if said address of  
2 said first index entry is valid comprises comparing the unique token of said first index entry  
3 to the unique token associated with a segment located at said address, and ascertaining if said  
4 unique tokens are the same.

1           49.     (Original) The method of claim 47, wherein determining if said address of  
2 said first index entry is valid comprises comparing a segment code of said first index entry to  
3 a segment code associated with a segment located at said address, and if said segment codes  
4 are the same, then comparing the unique token of said first index entry to the unique token  
5 associated with said segment located at said address, and ascertaining if said unique tokens  
6 are the same.

1           50.     (Original) The method of claim 26, wherein after a reorganization of data in  
2 said database but before taking steps to correct said address of said first index entry,  
3 determining if said address of said first index entry is valid and then correcting said address  
4 only if it is invalid.

1           51.     (Original) The method of claim 50, wherein determining if said address of  
2 said first index entry is valid comprises comparing the unique token of said first index entry  
3 to the unique token associated with a segment located at said address, and ascertaining if said  
4 unique tokens are the same.



1           52.     (Original) The method of claim 50, wherein determining if said address of  
2 said first index entry is valid comprises comparing a segment code of said first index entry to  
3 a segment code associated with a segment located at said address, and if said segment codes  
4 are the same, then comparing the unique token of said first index entry to the unique token  
5 associated with said segment located at said address, and ascertaining if said unique tokens  
6 are the same.

1           53.     (Original) The method of claim 31, wherein after a reorganization of data in  
2 said database but before taking steps to correct said address of said first index entry,  
3 determining if said address of said first index entry is valid and then correcting said address  
4 only if it is invalid.

1           54.     (Original) The method of claim 53, wherein determining if said address of  
2 said first index entry is valid comprises comparing the unique token of said first index entry  
3 to the unique token associated with a segment located at said address, and ascertaining if said  
4 unique tokens are the same.

1           55.     (Original) The method of claim 53, wherein determining if said address of  
2 said first index entry is valid comprises comparing a segment code of said first index entry to  
3 a segment code associated with a segment located at said address, and if said segment codes  
4 are the same, then comparing the unique token of said first index entry to the unique token  
5 associated with said segment located at said address, and ascertaining if said unique tokens  
6 are the same.

1           56.     (Original) The method of claim 37, wherein after a reorganization of data in  
2 said database but before taking steps to correct said address of said first index entry,  
3 determining if said address of said first index entry is valid and then correcting said address  
4 only if it is invalid.

1           57.     (Original) The method of claim 56, wherein determining if said address of  
2 said first index entry is valid comprises comparing the unique token of said first index entry  
3 to the unique token associated with a prefix component of a segment located at said address,  
4 and ascertaining if said unique tokens are the same.

1           58.     (Original) The method of claim 56, wherein determining if said address of  
2 said first index entry is valid comprises comparing a segment code of said first index entry to  
3 a segment code associated with a prefix component of a segment located at said address, and  
4 if said segment codes are the same, then comparing the unique token of said first index entry  
5 to the unique token associated with said prefix component of a segment located at said  
6 address, and ascertaining if said unique tokens are the same.

1           59.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 1.

1           60.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 7.

1           61.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 13.

1           62.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 19.

1           63.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 22.

1           64.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 26.

1           65.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 31.

1           66.     (Original) A program storage media readable by a machine and containing  
2 instructions for performing the method contained in claim 37.

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